REMARKS

In the Office Action mailed April 26, 2004, the Examiner noted that claims 1-17 were pending, allowed claim 8, objected to claim 8 and rejected claims 1-7 and 9-17. Claim 8 has been amended and, thus, in view of the forgoing claims 1-17 remain pending for reconsideration which is requested. No new matter has been added. The Examiner's rejections and objections are traversed below.

The Examiner has objected to claim 8, which has been amended in consideration of the Examiner's comments. Withdrawal of the objection is requested.

On page 1, via a check box and completed blank, and on page 5, the Examiner indicated that claim 8 was allowed. On page 3 of the Office Action, the Examiner rejected claim 1-17 under 35 U.S.C. section 102 as anticipated by Kolarov and we interpret page 3 as rejecting claim 1-7 and 9-17.

The present invention is directed to processing for computer-generated graphics. Kolarov is directed to processing associated with data compression. The field of endeavor of Kolarov is very different from that of the present invention. It is submitted that one of skill in the art looking to solve a problem in computer graphics would not look to the data compression field. The teachings of Kolarov are also not reasonably pertinent to the field of endeavor of the present invention. The problems being solved are just very different. Kolarov is attempting to determine the coefficients to be used in data compression, whereas the present invention is trying to solve the problem of increasing the resolution of the graphics image by dividing the geometry, two very different problems being solved. As a result, it is submitted that Kolarov is non-analogous art to the present invention. For this reason, the rejection should be withdrawn.

Even assuming for arguments sake that Kolarov is analogous art, the present invention distinguishes thereover as discussed below.

With respect to claim 9, the Examiner uses as an example the triangle T of figure 6 as the base mesh and uses triangle T2 as the new face. The Examiner then argues that the vertex V1 is surrounded by T and therefore meets the limitation of the base mesh "surrounding" (see claims 9, 13, and 17) the new vertex. This is not correct. V1 is on the edge of T not surrounded by it. And in fact, the new vertices in Kolarov are located at the mid-points of the edges (see col. 16, lines 53-58 & column 18, lines 16-28). The whole naming scheme of Kolarov hinges on the new vertices being the mid-points of the edges. A comparison of figures 2 and 3 of the present application illustrates new vertexes are surrounded by their base mesh faces, in the middle of

the faces, not on any of the edges. Thus, Kolarov does not teach this feature of the present invention.

Also with respect to claim 9 the Examiner argues that the vertices of the record for a triangle are the path to the new face. As noted by the Examiner the path is a list of triangles that are "descendant" of the triangle being recorded. That is, at best this is a path from the triangle being named not "to" (see claims 1, 9, 11, 13 and 17) the triangle being identified as in the present invention. Once again Kolarov does not teach the features of the present invention.

With respect to claim 9, the Examiner also alleged that the identifier of Kolarov includes the base mesh face, the path and the vertex index. In particular, the record noted by the Examiner includes the name of the triangle ("T?, where T = 0, 1, 2,or 3"). That is, for the triangle that the Examiner alleges is the new face, triangle T2, the name T? would be or equal T2. T2 is not the base mesh, T, noted for the triangle T2 by the Examiner. That is, the identifier of Kolarov does not include the base mesh as is emphasized in claim 9 (as well as claims 1, 11, 13 and 17). Again Kolarov does not teach the features of the present invention.

With respect to claim 10 (and claim 14), the Examiner asserts that levels of the triangle of figure 2 are depicted by the "numerals 620, 624 etc." These numerals are reference numbers added to the description particularly to assist in understanding the description and the figure since identifiers can be duplicated (see vertexes V1 being referenced by 666 & 660). The numbers 620, 624, etc. do not depict a level as in the present invention (see claims 2, 10 and 14) . Kolarov does not teach the features of the present invention.

Claim 11 calls for an action of traversing the path to the face using the base face index and the vertex index. This is not done in Kolarov. Kolarov describes creating a tree as the triangular subdivision occurs where each node in the tree represents a triangle where the tree is then stepped through during compression (see col. 13, line 21+ and col. 5, lines 19-21). In this situation it is the braches to the triangles of the tree that are traversed using those branches and not using the "base face index and the vertex index" as in claim 11 of the present invention. Again Kolarov is deficient in its teachings.

Claim 12 calls for using the level in the traversal noted above, there are no level identifiers in Kolarov and particularly no level identifiers in a tree of triangles. See also claims 2, 10 and 14 which call for a level being used and which is not taught or suggested by Kolarov.

The Examiner alleges that Kolarov, at col. 23, line 26 and 27, with respect to claim 17 teaches how to extend the naming scheme beyond triangles to “any polygon” or “any polytype”. This is not the case. The Kolarov naming scheme splits the edge to create a new vertex, and

then names it after the vertex opposite to that edge. In the case of non-triangles, such as a square, a vertex does not exist opposite an edge. Kolarov does not teach what constitutes the vertex opposite the edge in the case of a square. Further, if a generalized subdivision scheme is used, and the new vertices are created within the face and not on any of its edges, Kolarov does not teach how to name newly created vertices. It is submitted that Kolarov does not teach or disclose a system that will work with a polygon with an arbitrary number of sides as called for in claim 17.

With respect to claim 13, the Examiner refers to the hardware of figure 8 but does not address the features of the invention associated with the invention of claim 13 discussed above and below, such as the identifier comprising a base face surrounding the vertex, a vertex index and a path to the surface face. With respect to claim 13, the Examiner has not presented a prima facie case of anticipation by Kolarov. And claim 13 is distinguishable for the other reasons explicitly discussed herein. Again, Kolarov does not teach or suggest the features of the present invention.

With respect to claims 15 and 16 (and claim 5 and 6), the Examiner alleged that Kolarov discloses providing a unique vertex name and unique edge names pointing to col. 18, lines 1-25. In this description an edge is named for the vertex across from it (see col. 18, lines 4-6). This does not provide a unique name. For example, assume that a vertex is at the center of the following two triangle structure |><| and the vertex is named V1. With the naming scheme of Kolarov the right edge and the left edge would both be named "E1". This does not provide a unique edge name. As depicted by the multiple V1s in figure 6 (and the need to provide reference numbers to distinguish between them as noted above) Kolarov does not provide a unique vertex name. Again, Kolarov does not teach or suggest the features claims 5, 6, 15 and 16 of the present invention.

The Examiner alleges that Kolarov, at col. 17, line 57, with respect to claim 3 teaches a fixed bit integer. All Kolarov discusses is a "bit field" and says nothing about it being integer, fixed or having any other format. The Examiner has not made a prima facie case for anticipation of claim 3 by Kolarov. The Examiner is requested to explicitly point out where Kolarov teaches or suggest this feature. Kolarov does not teach or suggest the feature of claim 3. In fact col. 17, lines 57-59 Kolarov notes the use of pointers at each level. As the number of levels increases, you need more and more storage to record these pointers, this teaches away from the invention of claim 3. So, the storage size is not fixed as called for in claim 3.

With respect to claim 4, the Examiner asserts that "leading zeros of any number are always ignored". It is asserted that this is not the case. The Examiner is supporting the rejection of claim 4 using personal knowledge. The personal knowledge of the Examiner when used as a basis for a rejection "must be supported" by an affidavit as to the specifics of the facts of that knowledge when called for by applicant. See, e.g. 37 C.F.R. section 1.104(d)(2). In short, the rules of the U.S. Patent and Trademark Office do not allow discretion on the part of the Examiner. Either the Examiner must support this assertion with an Affidavit or withdraw the rejection. The Examiner is requested to support the rejection with either an affidavit or a reference, or withdraw the rejection.

The Examiner rejects claim 1 for the reasons ("as described above") of claims 9, 10, 11, 12, 17, 13, 15, 15 and 16. The comments by the Examiner do not address and say nothing about the feature where a "linear identifier" of claim 1 is determined. The Examiner has not made a prima facie case for anticipation of claim 1 by Kolarov. The Examiner is requested to explicitly point out where Kolarov teaches or suggest this feature. And claim 1 is distinguishable for the other reasons explicitly discussed herein. Again, Kolarov does not teach or suggest the features of the present invention.

The Examiner rejects claim 2 for the reasons ("as described above") of claims 9, 10, 11, 12, 17, 13, 15, 15 and 16. The comments by the Examiner do not address and say nothing about the feature of claim 2 where "a level indicator indicating a subdivision level of the face" used. The Examiner has not made a prima facie case for anticipation of claim 2 by Kolarov. The Examiner is requested to explicitly point out where Kolarov teaches or suggest this feature. And claim 2 is distinguishable for the other reasons explicitly discussed herein. Again, Kolarov does not teach or suggest the features of the present invention.

The Examiner rejects claim 7 for the reasons ("as described above") of claims 9, 10, 11, 12, 17, 13, 15, 15 and 16. The comments by the Examiner do not address and say nothing about the feature where the "vertex index identifies a level one subdivision vertex of a zero level subdivision base mesh face corresponding to the face" of claim 7. The Examiner has not made a prima facie case for anticipation of claim 7 by Kolarov. The Examiner is requested to explicitly point out where Kolarov teaches or suggest this feature.

It is submitted that the present claimed invention patentably distinguishes over Kolarov and withdrawal of the rejection is requested.

It is submitted that the claims are not taught, disclosed or suggested by the prior art. The claims are therefore in a condition suitable for allowance. An early Notice of Allowance is requested.

If any further fees, other than and except for the issue fee, are necessary with respect to this paper, the U.S.P.T.O. is requested to obtain the same from deposit account number 19-3935.

Respectfully submitted,

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